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RESEARCH

Sexual satisfaction and intimacy during pregnancy and after childbirth

S. Behzadipour [a,*], M. Daneshpour [b], N. Damreihani [a], L. Aflatooni [b]

[a] Department of Psychology, Islamic Azad university, Shiraz branch, Shiraz, Iran
[b] Alliant International University, Irvine, Ca, USA

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Summary Influential on women's sexual behavior and function, pregnancy plays a significant role along with intimacy in health, quality of life, and well-being. This phenomenon, in turn, is influenced by psychological, physiological, and marital relations as well as sociocultural effects. Therefore, the goal of this study was to investigate the roles of women's sexual satisfaction and intimacy after pregnancy and childbirth. In order to examine this goal, eight-month pregnant women in Shiraz, Iran, were selected during 2017 and 2018 for descriptive and causal-comparative analysis. Data were collected at two stages during pregnancy and eight months after delivery and measured using the Sexual Satisfaction Questionnaire (LSSQ; Larson et al., 1998) and the Marital Intimacy Needs Questionnaire (Bagarozzi, 1997). The data analyses reported descriptive and inferential statistics. The outcome of the current research has shown that sexual intimacy, physical intimacy, and aesthetic intimacy were significantly different between pregnancy phase (higher scores) and after delivery. Additionally, sexual satisfaction was rated significantly different pre and post-delivery, which can indicate that women and their sexual partners should be aware of the impact of healthy sexual intimacy during and after childbirth.
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Women experience different situations during pregnancy and childbirth with remarkable physiological and psychological changes (Harrison, 2000). Meltzer-Brody et al. (2018) state that this complex period, during which women are vulnerable, presents a number of challenges for women. In particular, during the first three months of the postpartum period women are at an increased risk of the onset or worsening of psychiatric illnesses which include mood disorders, anxiety disorders, and psychosis (Meltzer-Brody et al., 2018).

Hormonal, social, and physical changes may profoundly influence women's relations, health, and sexuality from

* Corresponding author.
E-mail addresses: sarebehzadi@gmail.com (S. Behzadipour), mdaneshpour@alliant.edu (M. Daneshpour), nfsh.reyhani@gmail.com (N. Damreihani), laflatooni@alliant.edu (L. Aflatooni).

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the stress of pregnancy and childbirth (Harrison, 2000). Woolhouse et al. (2012) found that sexual and intimate relations changed from the experiences of pregnancy, childbirth, and parenting. Blumstein and Schwartz (1983) contend that sexuality and intimacy are significant aspects of relations that are influenced by parenthood experiences. However, the definition of intimacy lacks scholarly consensus as a closed relationship between couples.

The meaning of intimacy changes based on contexts of age, sex, education, and culture. As such, there seems to be no consensus among researchers on the basic concept of intimacy — making its definition difficult (Martin and Tardif, 2014; Mitchell, 2007). Bagarozzi (2001) defines intimacy as proximity, similarity and a personal romantic or emotional communication that requires knowledge and understanding of the other.

Kardan-Souraki et al. (2016) claim that intimacy is associated with couple life quality; it is often referred to as being a basic psychological need, and it is one of the key characteristics of marital communication — impacting marital adjustment and mental health. Impacts on mental health include reducing of the risk of depression, increasing happiness and well-being (Kardan-Souraki et al., 2016).

Besides, it is a strong predictor of physical health as it is associated with low levels of disease and impoverishment (Boden et al., 2010; Dandurand and Lafontaine, 2013; Moreira et al., 2010; Nainian and Nik-Azin, 2013).

Sexual intimacy

Intimacy characterizes familiarity and privacy in close interpersonal relations like sexual relationships. Schaefer and Olson (1981) postulated that intimacy is a multidimensional concept, comprised of intellectual, interpersonal, emotional, and bodily perspectives in marital relations. Experiences of emotional and sexual intimacy appear interrelated in couples' relationships (Cordova et al., 2005; Greeff and Malherbe, 2001; Guo and Huang, 2005; Litzinger and Gordon, 2005; Yeh et al., 2006).

Haning et al. (2007) found that couples' emotional intimacy was positively related to sexual intimacy. These aspects of intimacy may affect marital relations in different ways. Couples with sexual satisfaction are not necessarily satisfied with closeness, as sexual satisfaction is not guaranteed by attachment between couples (Hook et al., 2003; Sprecher, 2002). Most studies have measured singular aspects of couples' intimacy, such as emotional or sexual intimacy (Cordova et al., 2005; Litzinger and Gordon, 2005). In contrast, one study investigated the dichotomy of emotional and sexual intimacy and created a global measure of intimacy without considering the personal effects on relationship outcomes (Laurenceau et al., 2005).

Changes in sexual intimacy

Changes in intimate partner relationships need to be examined in terms of role, sex, and intimacy, as these changes become complicated for women after childbirth (Woolhouse et al., 2012). Due to the significance of sexuality, scholars tend to focus on healthy sexual relationships among intimate partners. Ahlborg et al. (2005) posit that sexuality factors are complex and influence healthy sexual relationships, particularly during pregnancy and after childbirth. Sexuality involves a wide range of actions, emotions, and affections (DeJudicibus and McCabe, 2002). Sexual relationships are affected by childbirth and pregnancy, especially during the postnatal experience (Khajehei and Doherty, 2018). Barrett et al. (2000) found that after childbirth, sexual desire declines from vaginal dryness, which affects sexual intercourse among many women. A healthy life is impacted by high-quality sexual intimacy; however, sexual dysfunction negatively influences the women's mental health and life quality (Mercer et al., 2005; Howard, 2010).

Sexual intimacy and marital satisfaction

Marital satisfaction and intimacy are associated with sexual satisfaction as a general pattern among pregnant couples (Byers, 2005; De Judicibus and McCabe, 2002; Witting et al., 2008; Yeh et al., 2006). Other researchers contend that marital satisfaction may be influenced by affective dimensions (Cordova et al., 2005; Greeff and Malherbe, 2001) and sexual relations (Greeff and Malherbe, 2001; Guo and Huang, 2005; Litzinger and Gordon, 2005; Yeh et al., 2006). Clinicians have long addressed postpartum sexuality issues in marital relations and found that intimacy changes are unprecedented among first-time parents (Stavdal et al., 2019).

Sexual intimacy, religion, and culture

Women's perspectives on childbirth and sexuality are impacted by cultural and religious factors (Cantarino et al., 2016; Callister et al., 1999). Many cultures do not openly address sexual relationships, and men's sexual satisfaction is more acknowledged than women's, as traditional cultures do not allow women to express sexual desires (Sidi et al., 2007). Contemporary studies indicate that women often feel ashamed of addressing their sexual needs openly (Sidi et al., 2007). Researchers contend that social and religious pressures prevent women from expressing their sexual desires whose sexual relations are of low quality and changing in nature. Moreover, sexual taboos reflected in Iranian society are emphasized during postpartum and lactation periods, complicating sexual desire, and intimacy (Jessup and Powers, 1987). However, these challenges are addressed more openly in western societies, while eastern societies lack systematic applications (Teimourpour et al., 2013).

Therefore, it is essential to compare both the direct and indirect influences of sexual satisfaction and intimacy among pregnant women and after childbirth in the Iranian context because of its importance in romantic relationships (Litzinger and Gordon, 2005). Thus, this research aimed to assess sexual satisfaction and intimacy, by providing a comparison between pregnancy and postpartum periods in terms of sexual intimacy and function for Iranian women. The researchers hypothesized that there would be a significant difference in sexual intimacy among women before and after childbirth and that there would be a significant difference in sexual satisfaction among women before and after childbirth.

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Method

Participants

One hundred married women were recruited during their eight months of pregnancy in a Training and Research Hospital in Shiraz, Iran. Of those ($n = 100$), 40 participants were excluded due to their reluctance in participating, missing data, and invalid responses, for a final sample size of 60 participants. Demographic information included age, occupation, educational level, and marital status. Participants' ages ranged from 25—30 (31%), 31—35 (57%), and 36—40 (12%). Participants' occupations was reported as housewives (63%) and employed as (37%). The education levels were reported as diploma (28%) and higher education degrees (72%).

Measures

Larson sexual satisfaction questionnaire (LSSQ). Participants' sexual satisfaction were assessed using the Larson Sexual Satisfaction Questionnaire (LSSQ; Larson et al., 1998). The LLSQ is a 25 item self-report measure assessing a range of sexual satisfaction and is scored on five-point Likert-type scale. Participants were asked to rate each item from *one = never,* to *five = always*, with 13 items reversely scored. The lowest and highest scores are 25 and 125, respectively (Shams et al., 2010; Larson et al., 1998). Shams et al. (2010) reported the reliability and validity of the Persian LLSQ with a Cronbach's Alpha of 0.97.

Created by Larson et al. (1998), Larson Sexual Satisfaction Questionnaire includes 25 questions. Each question is answered on a one to five whole number scale (Noori and Khayatan, 2017). For questions one to three, 10, 12—13, 16, 17, 19 and 21-23 this scale is as follows: one (never), two (seldom), three (sometimes), four (often), five (always). For the other questions- four, five six, seven, eight, nine, 11, 14, 15, 18, 20, 24 and 25, this scale is reversed such that one (always), two (often) etc. (Noori and Khayatan, 2017). The total score ranges from 25—125. The general interpretation of this score is as follows: under 50 (lack of sexual satisfaction), 51—75 (low sexual satisfaction), 76—100 (medium satisfaction), 101 and above (high satisfaction) (Noori and Khayatan, 2017).

Marital intimacy needs questionnaire. Participants marital intimacy needs were assessed using the Marital Intimacy Needs Questionnaire (Bagarozzi, 1997). The Marital Intimacy Needs Questionnaire assesses intimacy needs in terms of emotional, psychological, rational, sexual, physical, spiritual, aesthetical, and recreational-social aspects.

MINQ consists of 46 items in nine categories including emotional intimacy, psychological intimacy, intellectual intimacy, sexual intimacy, spiritual intimacy, aesthetic intimacy, social and recreational intimacy, physical intimacy and temporal intimacy (Bagarozzi, 1997). Each category comprises five items except the spiritual category that consists of six items (Bagarozzi, 1997).

Some sample statements of the emotional category are: ''In general, how strong is your need to communicate and share your feelings with your spouse/partner?'' and ''How important is it for you that your spouse/partner be receptive to and listen to you whenever you share your feelings with him/her?'' and ''To what extent is your spouse/partner able to meet and satisfy your need for emotional intimacy?'' (Bagarozzi, 1997).

The measure is scored on a 10-point Likert-type scale. Participants were asked to rate each item from *one = no such need* to *10 = such need*.

Demographics. Age, occupation, educational level, and marital status were assessed using a demographic questionnaire developed specifically for this study.

Procedure

The hospital issued a written statement granting permission to conduct the study, which was approved by their ethics committee. Women that were in their eight months of pregnancy were randomly selected to participate in the study. Interested participants were given a brief description of the study and asked to give consent before completing the initial intake screening. Prior to the commencement of the intake, interested participants were informed of the voluntary nature of the intake and their right to terminate at any time. These women were informed that there would be no repercussions from the hospital for opting out of the study. Basic demographic information and inclusion/exclusion criteria were assessed.

Of the 100 women recruited, 60 remained in the study. Interested participants were asked to complete the questionnaire packets with the consent forms located inside; these packets were in envelopes distributed by one hospital staff member familiar with the study who asked participants to complete the questionnaires, which included the Larson sexual satisfaction questionnaire (LSSQ), Marital intimacy needs questionnaire, and the demographic questionnaire (not needed to be completed if already done so during intake screening) to complete and return. The hospital designated a locked drop-off box with a slit opening for participants to submit their packets in sealed envelopes. Only the researcher (principal investigator) had the key to open the box and access the submitted materials. The same procedure was repeated at an eight-month follow-up after childbirth.

Protection of human participants and confidentiality

Several steps were taken to protect participants, to keep the data completely anonymous, and to safeguard the confidentiality of the data. Firstly, the consent forms were located in the questionnaire packets and were not instructed to be signed in front of hospital staff (participants may have only done so if they wished). In the written Informed Consent form, women's rights were explained including being able to not answer any particular question(s) and to stop their participation at any given time without repercussions. The women were also reminded that any decisions they made during their participation would not affect their relationship with the hospital. Likewise, the women were assured that their identities and responses would remain confidential. As a part of ensuring that the participants fully understood

Table 1 Intimacy means and standard deviations during and after pregnancy.

Variables	N	During pregnancy		After childbirth	
		Mean	SD	Mean	SD
Sexual satisfaction	60	102.88	8.96	63.11	5.66
Emotional intimacy	60	42.20	5.05	21.45	3.71
Psychological intimacy	60	36.15	9.71	35.63	8.90
Rational intimacy	60	36.41	10.35	35.81	9.91
Sexual intimacy	60	43.56	5.41	22.01	4.03
Physical intimacy	60	43.75	6.93	21.43	4.57
Spiritual intimacy	60	40.00	11.21	40.46	10.81
Aesthetic intimacy	60	37.00	9.64	35.86	10.20
Social-recreational intimacy	60	37.95	9.27	37.58	8.51

their rights, contact information was listed should the participants have had any questions or concerns about the study.

Data collected for this study was stored in a protected location that could only be accessed by the researcher (principal investigator). After the research was completed, all questionnaires were shredded by the principal investigator. The researcher made every effort to protect participants' anonymity. Participants' identities were not used in any reports written about this study and the consent form containing their signature were kept separate from their responses, which did include names and was only presented as a summary with other participants' responses.

Data analysis

A Multivariate Analysis of Variance (MANOVA) was performed to analyze group differences. Statistical analysis was conducted utilizing The Statistical Package for Social Sciences (SPSS) software. Values of less than 0.05 were considered statistically significant.

Results

Descriptive statistics

As shown in Table 1, the variable characteristics of sexual satisfaction, sexual, emotional, and physical intimacy have the highest decrease in mean differences after childbirth. Although other variables decreased after childbirth, the mean differences were not significant.

Hypothesis One. There will be a significant difference in sexual intimacy among women before and after childbirth. Hypothesis One was statistically significant ($p < .05$). Table 2 shows that there are significant differences among the respondents in terms of emotional, sexual, and physical intimacy before and after childbirth ($p < 0.01$). Furthermore, according to the mean scores presented in Table 1, the mean scores for emotional, sexual, and physical intimacy are higher during pregnancy than after childbirth.

Hypothesis Two. There will be a significant difference in sexual satisfaction among women before and after childbirth. Hypothesis two was statistically significant ($p < .05$). Table 3 shows that there are significant differences between the respondents in terms of sexual satisfaction before and after childbirth ($p < 0.01$). Furthermore, according to the mean scores presented in Table 1, the mean score for sexual satisfaction is higher during pregnancy than after childbirth.

Discussion

Women's sexual satisfaction and intimacy were compared during pregnancy and the postpartum period. The results indicated that women were significantly different in terms of sexual satisfaction and intimacy aspects (emotional, sexual, and physical) during pregnancy and after childbirth. Higher scores were reported for intimacy aspects during pregnancy. Sexual satisfaction analysis indicated significant differences between subjects before and after delivery. The highest score of sexual satisfaction was reported during pregnancy. After childbirth, sexual relationship issues like pain, pruritus, lack of orgasm, sexual desire, and anal sex were reported more frequently than before pregnancy. Results were consistent with other studies in terms of significant influences pregnancy and childbirth have on sexual relations, which need more medical and clinical attention (Ahlborg et al., 2005; Khajehei and Doherty, 2018; Leavitt et al., 2017; Mickelson and Joseph, 2012; Montemurro and Siefken, 2012; Woolhouse et al., 2012).

According to Yeniel and Petri (2014), women experience significant challenges during pregnancy and postpartum periods due to changes in maternal priorities, childbirth stress and responsibilities. These factors lead to more energy exertion and less sleep, which interferes with the couple relationships (Yeniel and Petri, 2014). Couples have more time for sexual intimacy and interpersonal relations before childbirth, and changes after childbirth occur from the physical limitations of women. Intimacy, in this case, may also be affected by women's shyness in asking for help from physicians (Zarra-Nezhad and Moazami-Goodarzi, 2011). In addition to physical changes during pregnancy, postpartum periods directly influence women's sexual functioning. Postpartum physical changes alter women's body image and may make them feel they are not sexually attractive, and their husbands may perceive relationships inversely (Montemurro and Siefken, 2012). Women's sexual attraction perceptions are affected by the physical changes of pregnancy (Henderson et al., 2015). Dew and Wilcox (2011) contend that the time spent between couples

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Table 2 Intimacy before and after childbirth.

Independent variables	Sum of squares	Df	Mean of squares	F	Sig.
Emotional intimacy	12916.87	1	12916.87	656.85	0.001
Psychological intimacy	8.00	1	8.00	0.092	0.762
Rational intimacy	10.80	1	10.80	0.105	0.746
Sexual intimacy	13932.07	1	13932.07	610.30	0.001
Physical intimacy	10341.63	1	10341.63	299.92	0.001
Spiritual intimacy	49.40	1	49.40	0.407	0.525
Aesthetic intimacy	38.53	1	38.53	0.391	0.533
Social-recreational intimacy	4.03	1	4.03	0.051	0.822

Table 3 ANOVA results hypothesis two.

Independent variable	Sum of squares	Df	Mean of squares	F	Sig.
Sexual satisfaction	47441.63	1	47441.63	844.06	0.001

declines after childbirth, resulting in a sexual disconnection due to the new responsibilities of parenting. Therefore, women's stressful circumstance as mothers, such as the amount of available time to pay attention to their husbands emotionally and emphatically, impacts both women and their partners' satisfaction.

Furthermore, acceptable sexual behaviors, as perceived by the couple and in the context of their religion and culture, are considered priorities above all other areas high in relevance to human nature (Regnerus, 2007). Various beliefs about sexuality in religion and culture alter sexual self-perceptions (Browning et al., 2006). Religiously, studies imply that sexual viewpoints and behaviors are more highlighted and emphasized after a few years of being married (McFarland et al., 2011). In contrast to patriarchal religious beliefs, religiousness is also reported to be higher among women (Browning et al., 2006; Hunt and Jung, 2009; Pew Research Center, 2015) in which women tend to adhere to religious beliefs and avoid sexual misbehaviors (Brelsford et al., 2011).

In Iran, a collectivistically oriented eastern cultures with religion of Islam being an important aspect of everyday life, sexuality manifests as more taboo and is scarcely discussed publicly or academically. Sexual intimacy is not permissible before marriage. Therefore, there is less education and emphasis on pregnancy and postpartum hormonal alterations psychologically. These norms in Iran are more restrict females because of the importance of virginity. Sinful thoughts about sex before marriage is not limited to Islam, as Christians and Jews entail such beliefs as well. Consequently, sexuality means sin for females with guilty irritations even after marriage. From this perspective, many dimensions of life, especially the couple's relations, are under the influence of religious values. Feeling guilt entails distressful actions to avoid moral norms. Engagement in sexual relations would internalize a bad self-image in women. As a result, sexual dysfunction and dissatisfaction emerge as direct outcomes of guilty feelings about sexuality. However, sexual relations during pregnancy and after childbirth connect to pre-pregnancy relations, and this is prohibited in many societies even after childbirth (Jessup and Powers, 1987). These beliefs about religion, social rules, and cultural attitudes affect women's marital and sexual roles, summons further scholarly research and clinical attention.

Clinical implications

This research article extends the scholarly research on the remarkable changes in women's experiences of sexual intimacy during pregnancy and postpartum periods. These findings imply educational relevance for interventions and public awareness about sexual relations and intimacy within educational and therapeutic functions. Furthermore, sexual issues can be one the contributor to a higher rate of divorce in Muslim societies. Increased clinical reporting heightens the critical need for clinical interventions to address the significance of sexual issues. Accordingly, the results obtained in this research article contribute to the literature as indicators of significant outcomes in perceptions of sexual intimacy, especially after childbirth.

Limitations

This research has several significant limitations that may have affected the validity of the results. The results of this research cannot be extended to larger populations and lack representativeness for women's experiences in numerous societies. There also may be biases in the results due to all women being recruited from one city and one hospital. More importantly, the sample of this research was limited to mothers at 8-months of pregnancy and post-childbirth sexual experiences. Future studies are needed to monitor the post-pregnancy sample in terms of other variables studied.

Further directions

Studying men's sexual roles after their wives' first delivery can contribute to the influence of depression among women and postpartum experiences. Thus, studying

couples' relationship dynamics is recommended to evaluate the implications of the results. Moreover, investigating young women's postpartum experiences can help inform modern families' relational issues. General healthcare challenges can also be examined by studying other postpartum issues through longitudinal designs. Finally, increasing the sample size and comparing different sociocultural backgrounds provides a wide-ranging results about pre-pregnancy and postpartum sexual relations.

Disclosure of interest

The authors declare that they have no competing interest.

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